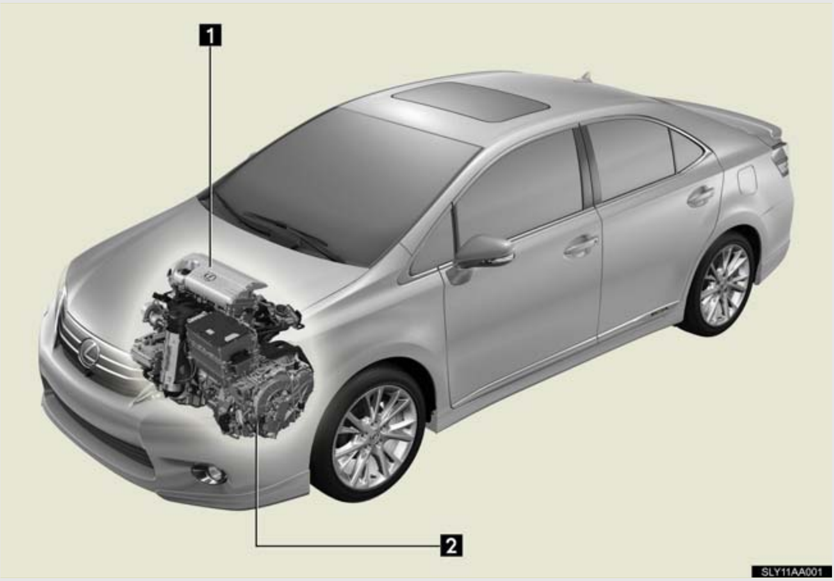
Hybrid system

Your vehicle is a hybrid vehicle. It has characteristics different from conventional vehicles. Be sure you are closely familiar with the characteristics of your vehicle, and operate with care.

The hybrid system combines the use of a gasoline engine and an electric motor (traction motor) according to driving conditions, improving fuel efficiency and reducing exhaust emissions.



1 Gasoline engine

2 Electric motor (Traction motor)

When stopped/during start off

The gasoline engine stops* when the vehicle is stopped. During start off, the electric motor (traction motor) drives the vehicle. At slow speeds or when traveling down a gentle slope, the engine is stopped* and the motor is used.

When shift position N is selected, the hybrid battery (traction battery) will not be charged. Thus, select P when the vehicle is stopped. In addition, when driving in heavy traffic, use D or B.

*: However, when the hybrid battery (traction battery) need to be charged or while the engine is being warmed up, the gasoline engine may not stop automatically.

- **During normal driving**

  The gasoline engine is predominantly used. The electric motor (traction motor) charges the hybrid battery as necessary.

- **When accelerating sharply**

  The power of the hybrid battery (traction battery) is added to that of the gasoline engine via the electric motor (traction motor).

- **When braking (regenerative braking)**

  The electric motor (traction motor) charges the hybrid battery (traction battery).

- **Regenerative braking**

  In the following situations, kinetic energy is converted to electric energy and deceleration force can be obtained in conjunction with the recharging of the hybrid battery (traction battery).

  - The accelerator pedal is released while driving with shift position D or B selected.
  - The brake pedal is depressed while driving with shift position D or B selected.

- **Conditions in which the gasoline engine may not stop**

  The gasoline engine starts and stops automatically. However, it may not stop automatically in the following conditions:

  - During gasoline engine warm-up
  - During hybrid battery (traction battery) charging
  - When the temperature of the hybrid battery (traction battery) is high or low
  - When the heater is switched on

- **Charging the battery**

  As the gasoline engine charges the hybrid battery (traction battery), the battery does not need to be charged from an outside source. However, if the vehicle is left parked for a long time the hybrid battery will slowly discharge. For this reason, be sure to drive the vehicle at least once every few months for at least 30 minutes or 10 miles (16 km). If the hybrid battery becomes fully discharged and you are unable to jump-start the vehicle with the 12-volt battery, contact your Lexus dealer.

- **After the 12-volt battery has discharged or has been changed or removed**

  The gasoline engine may not stop even if the vehicle is running on the hybrid battery (traction battery). If this continues for a few days, contact your Lexus dealer.

- **Sounds and vibrations specific to a hybrid vehicle**

  There may be no engine sounds or vibration even though the vehicle is able to move. Always change the shift position to P, and apply the parking brake when parked.

  The following sounds or vibrations may occur when the hybrid system is operating and are not a malfunction:

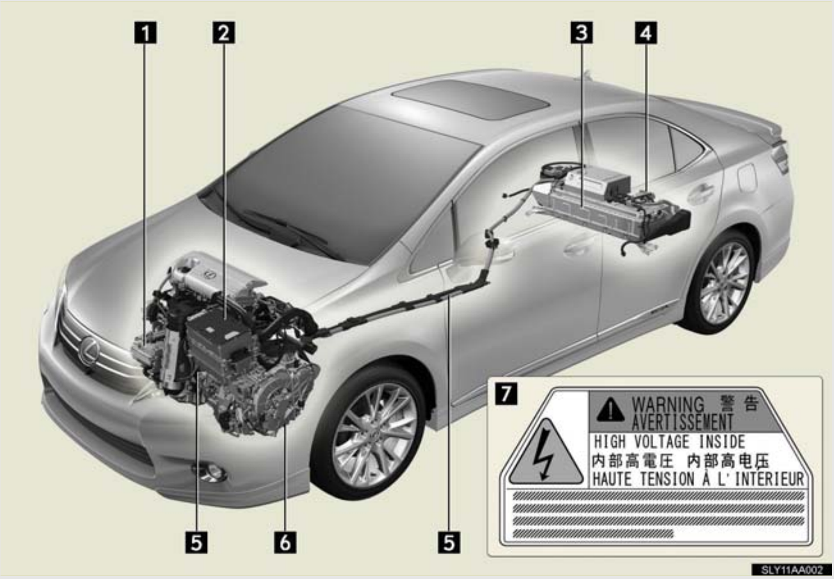
  - Motor sounds may be heard from the engine compartment.
  - Sounds may be heard from the hybrid battery (traction battery) behind the rear seats when the hybrid system starts or stops.
  - Sounds from the hybrid system may be heard when the trunk lid is open.
  - Sounds may be heard from the transaxle when the engine is started or stopped, or while the engine is idling.
  - Engine sounds may be heard when accelerating sharply.
  - Sounds may be heard due to regenerative braking when the brake pedal is depressed and accelerator is loosened.
  - Other sounds, such as motors and mechanical noises, may be heard from the brake system when the brake pedal is depressed.
  - Vibration may be felt when the gasoline engine starts or stops.
  - Cooling fan sounds may be heard from the air intake vent on the side of rear left seatback.
    When driving in Eco drive mode, the fan noise may be louder than when driving normally.

■ **Maintenance, repair, recycling, and disposal**

Contact your Lexus dealer regarding maintenance, repair, recycling and disposal. Do not dispose of the vehicle yourself.

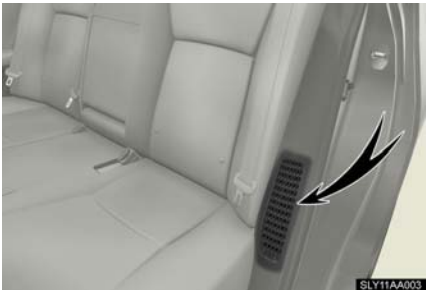
Hybrid system precautions

Take care when handling the hybrid system, as it contains a high voltage system (about 650V at maximum) as well as parts that become extremely hot when the hybrid system is operating. Obey the caution labels attached to the vehicle.



1 Air conditioning compressor
2 Power control unit
3 Hybrid battery (traction battery) and DC/DC converter
4 Service plug
5 High voltage cables (orange)
6 Electric motor (traction motor)
7 Caution label

Hybrid battery air vent



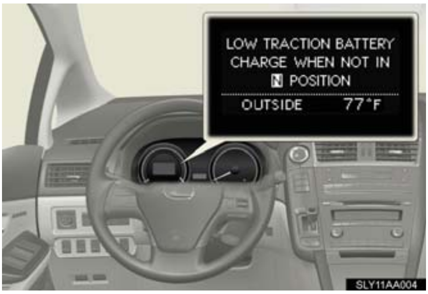
There is an air intake vent on the side of the rear left seatback for the purpose of cooling the hybrid battery (traction battery). If the vent become blocked, the hybrid battery may overheat, leading to a reduction in hybrid battery output.

Emergency shut off system

When a certain level of impact is detected by the impact sensor, the emergency shut off system blocks off the high voltage current and stops the fuel pump to minimize the risk of electrocution and fuel leakage. If the emergency shut off system activates, your vehicle will not restart. To restart the hybrid system, contact your Lexus dealer.

Hybrid warning message

A message is automatically displayed when a malfunction occurs in the hybrid system or an improper operation is attempted.



If a warning message is shown on the multi-information display, read the message and follow the instructions. (→P. 507)

- **If a warning light comes on, a warning message is displayed, or the 12-volt battery is disconnected**

  The hybrid system may not start. In that case, try to start the system again. If the "READY" indicator does not come on, contact your Lexus dealer.

- **Electromagnetic waves**

  - High voltage parts and cables on the hybrid vehicles incorporate electromagnetic shielding, and therefore emit approximately the same amount of electromagnetic waves as conventional gasoline powered vehicles or home electronic appliances.
  - Your vehicle may cause sound interference in some third party-produced radio parts.

- **Running out of fuel**

  When the vehicle has run out of fuel and the hybrid system cannot be started, refuel the vehicle with at least enough gasoline to make the low fuel level warning light (→P. 501) go off. If there is only a small amount of fuel, the hybrid system may not be able to start. (The minimum amount of fuel to add to make the low fuel level warning light go out is about 2.6 gal. [10 L, 2.1 Imp.gal.], when the vehicle is on a level surface. This value may vary when the vehicle is on a slope.)

- **Hybrid battery (traction battery)**

  The hybrid battery (traction battery) has a limited service life. The lifespan of the hybrid battery (traction battery) can change in accordance with driving style and driving conditions.

CAUTION

High voltage precautions

The vehicle has high voltage DC and AC systems as well as a 12-volt system. DC and AC high voltage is very dangerous and can cause severe burns and electric shock that may result in death or serious injury.

- Never touch, disassemble, remove or replace the high voltage parts, cables or their connectors.
- The hybrid system will become hot after starting as the system uses high voltage. Be careful of both the high voltage and the high temperature, and always obey the caution labels attached to the vehicle.



- Never try to open the service plug access hole located in the luggage compartment. The service plug is used only when the vehicle is serviced and is subject to high voltage.

Road accident cautions

Observe the following precautions to reduce the risk of death or serious injury:

- Pull your vehicle off the road, change the shift position to P, apply the parking brake, and turn the hybrid system off.
- Do not touch the high voltage parts, cables and connectors.
- If electric wires are exposed inside or outside your vehicle, an electric shock may occur. Never touch exposed electric wires.
- If a fluid leak occurs, do not touch the fluid as it may be strong alkaline electrolyte from the hybrid battery (traction battery). If it comes into contact with your skin or eyes, wash it off immediately with a large amount of water or, if possible, boric acid solution. Seek immediate medical attention.
- If a fire occurs in the hybrid vehicle, leave the vehicle as soon as possible. Never use a fire extinguisher that is not meant for electric fires. Using even a small amount of water may be dangerous.

CAUTION

- If your vehicle needs to be towed, do so with front wheels raised. If the wheels connected to the electric motor (traction motor) are on the ground when towing, the motor may continue to generate electricity. This may cause an electricity leakage leading to a fire. (→P. 489)
- Carefully inspect the ground under the vehicle. If you find that liquid has leaked onto the ground, the fuel system may have been damaged. Leave the vehicle as soon as possible.

Nickel-metal hydride battery

Your vehicle contains a sealed nickel-metal hydride battery. If disposed of improperly, it is hazardous to the environment and there is a risk of severe burns and electrical shock that may result in death or serious injury.

Emergency shut off system

Carefully check to see if there are exposed high voltage parts or cables. Never touch the parts or cables. (→P. 28)

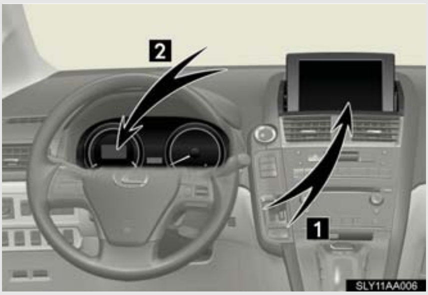
NOTICE

Hybrid battery air vent

- Do not put foreign objects near the air vent. The hybrid battery (traction battery) may overheat and be damaged.
- Clean the air vent regularly to prevent the hybrid battery (traction battery) from overheating.
- Do not wet or allow foreign substances to enter the air vent as this may cause a short circuit and damage the hybrid battery (traction battery).
- Do not carry large amounts of water such as water cooler bottles in the vehicle. If water spills onto the hybrid battery (traction battery), the battery may be damaged. Have the vehicle inspected by your Lexus dealer.

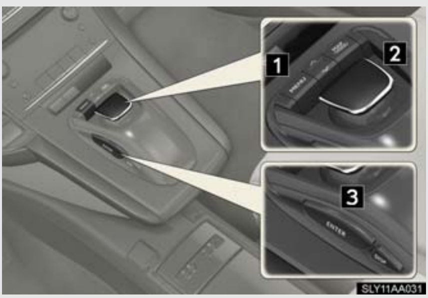
Energy monitor/consumption screen

You can view the status of your hybrid system on the multi-information display and the navigation system screen.



1 Navigation system screen (if equipped)

2 Multi-information display



Remote Touch*

1 "MENU" button

2 Remote Touch knob

3 "ENTER" button

*:For use of the Remote Touch, refer to "Navigation System Owner's Manual".

Energy monitor

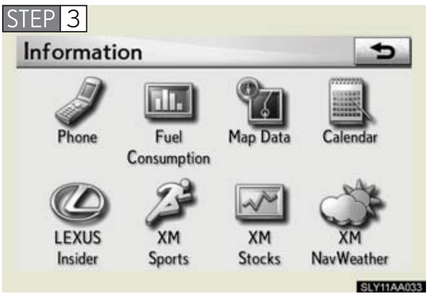
Navigation system (if equipped)

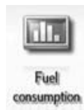


Press the "MENU" button on the Remote Touch.



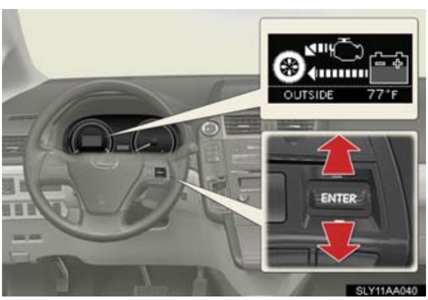
Select  on the Start screen and press the “ENTER” button on the Remote Touch.



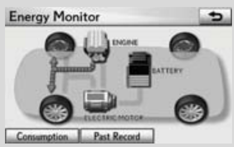
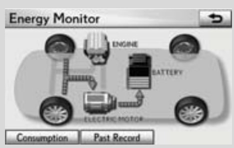
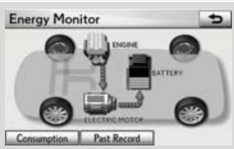
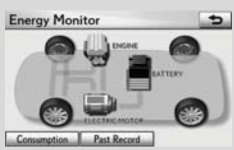
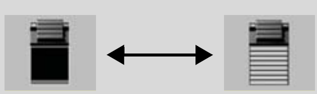
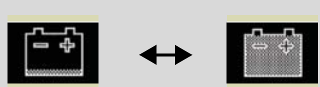
Select  and press the “ENTER” button on the Remote Touch.

If the Consumption or Past Record screen is displayed, select Energy and press the “ENTER” button on the Remote Touch.

Multi-information display

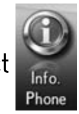


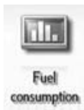
Toggle the “ENTER” switch on the steering wheel upward or downward through several items to select the energy monitor display.

	Navigation screen	Multi-information display
When the vehicle is powered by the electric motor (traction motor)		
When the vehicle is powered by both the gasoline engine and the electric motor (traction motor)		
When the vehicle is powered by the gasoline engine		
When the vehicle is charging the hybrid battery (traction battery)		
		
When there is no energy flow		
Hybrid battery (traction battery) status	Low Full 	Low Full 

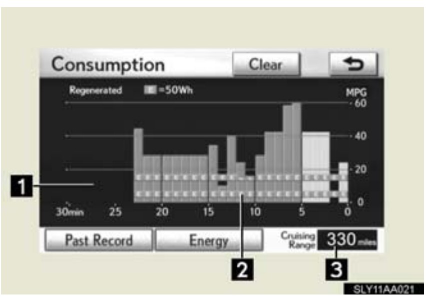
These images are examples only, and may vary slightly from actual conditions.

Consumption (vehicles with a navigation system)

STEP 1 Press the "MENU" button on the Remote Touch and select .

STEP 2 Select  and press the "ENTER" button on the Remote Touch.

If the **Consumption** screen does not appear, select **Consumption** and press the "ENTER" button on the Remote Touch.



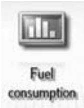
1. Fuel consumption in the past 30 minutes
2. Regenerated energy in the past 30 minutes

   One symbol indicates 50 Wh. Up to 4 symbols are shown.
3. Cruising range (→P. 37)

Past record (vehicles with a navigation system)

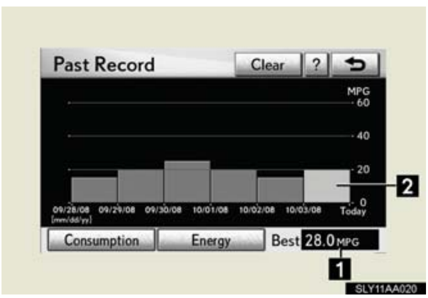
STEP 1 Press the "MENU" button on the Remote Touch and select 

.

STEP 2 Select 

and press the "ENTER" button on the Remote Touch.

If the **Past Record** screen does not appear, select **Past Record** and press the "ENTER" button on the Remote Touch.



1 Best past fuel consumption

2 Average fuel consumption

Displays the average fuel consumption between each reset of the total average fuel consumption on the multi-information display.

When resetting, if the total average fuel consumption is better than the best past fuel consumption, the best past fuel consumption will be updated.

These images are examples only, and may vary slightly from actual conditions.

Resetting the consumption data

Selecting Clear on the **Consumption** screen will reset the average fuel consumption. Selecting Clear on the **Past Record** screen will reset the past records. Selecting Yes will confirm resetting of all the data (except cruising range).

Cruising range

Displays the estimated maximum distance that can be driven with the quantity of fuel remaining.

This distance is computed based on your average fuel consumption.
As a result, the actual distance that can be driven may differ from that displayed.

Hybrid vehicle driving tips

For economical and ecological driving, pay attention to the following points:

Using Eco drive mode

When using Eco drive mode, the torque corresponding to the accelerator pedal depression amount can be generated more smoothly than it is in normal conditions. In addition, the operation of the air conditioning system (heating/cooling) will be minimized, improving the fuel economy. (→P. 157)

Use of Hybrid System Indicator

The environmentally-friendly driving is possible by keeping the indicate of Hybrid System Indicator within Eco area. (→P. 166)

When braking the vehicle

Make sure to operate the brakes gently and in good time. A greater amount of electrical energy can be retained when slowing down.

Delays

Repeated acceleration and deceleration, as well as long waits at traffic lights, will lead to bad fuel consumption. Check traffic reports before leaving and avoid delays as much as possible. When encountering a delay, gently release the brake pedal to allow the vehicle to move forward slightly while avoiding overuse of the accelerator pedal. Doing so can help control excessive gasoline consumption.

Highway driving

Control your speed and keep at a constant speed. Also, before stopping at a toll booth or similar, allow plenty of time to release the accelerator and gently apply the brakes. A greater amount of electrical energy can be retained when slowing down.

Air conditioning

Use the air conditioning only when necessary. Doing so can help control excessive gasoline consumption.
In summer: In high temperatures, use the recirculated air mode. Doing so will help to reduce the burden on the air conditioner and reduce fuel consumption as well.
In winter: Because the gasoline engine will not automatically cut out until the gasoline engine and the interior of the vehicle are warm, it will consume fuel. Also, fuel consumption can be improved by avoiding overuse of the heater.

Checking tire inflation pressure

Make sure to check the tire inflation pressure frequently. Improper tire inflation pressure can cause poor fuel consumption.
Also, as snow tires can cause large amounts of friction, their use on dry roads can lead to poor fuel consumption. Use a tire that is appropriate for the season.

Luggage

Carrying heavy luggage can lead to poor fuel consumption. Avoid carrying unnecessary luggage. Installing a large roof rack can also cause poor fuel consumption.

Warming up before driving

Since the gasoline engine starts up and cuts out automatically when cold, warming up the engine is unnecessary. Moreover, frequently driving short distances will cause the engine to repeatedly warm up, which can lead to poor fuel consumption.